(19) World Intellectual Property Organization

International Bureau





(43) International Publication Date 20 October 2005 (20.10.2005)

PCT

(10) International Publication Number WO 2005/096726 A2

(51) International Patent Classification: Not classified

(21) International Application Number:

PCT/US2005/010216

(22) International Filing Date: 25 March 2005 (25.03.2005)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:

60/556,429 26 March 2004 (26.03.2004) US

- (71) Applicant (for all designated States except US): LUNA INNOVATIONS INCORPORATED [US/US]; 2851 Commerce Street, Blacksburg, Virginia 24060 (US).
- (72) Inventors; and
- (75) Inventors/Applicants (for US only): KLEMER, Daniel, R. [US/US]; 900 B7 Brightwood Manor, Blacksburg, Virginia 24060 (US). GAUSE, Charles, B. [US/US]; 228 Lakeside Lane, Providence, North Carolina 27315 (US). STEVENSON, Steven, A. [US/US]; 508 Alleghany Street, Blacksburg, Virginia 24060 (US).
- (74) Agents: DADIO, Susan, M. et al.; Burns, Doane, Swecker & Mathis, LLP, P. O. Box 1404, Alexandria, Virginia 22313-1404 (US).

- (81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SM, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.
- (84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

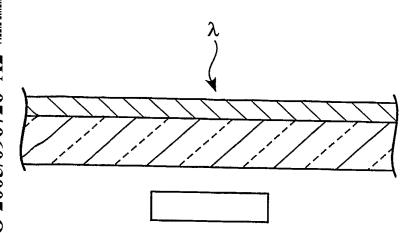
Published:

 without international search report and to be republished upon receipt of that report

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(57) Abstract:

(54) Title: OPTICAL LIMITER HAVING TRIMETALLIC NITRIDE ENDOHEDRAL METALLOFULLERENE FILMS



substrate and a layer on a first surface of the substrate, the layer having a trimetallic nitride endohedral metallofullerenes. The layer can be a thin film of the trimetallic nitride endohedral metallofullerene, a layer material with a cavity containing a solution with the trimetallic nitride endohedral metallofullerene, a sol-gel with a trimetallic nitride endohedral metallofullerene, and a self assembled monolayer with a trimetallic nitride endohedral metallofullerene. The layers of trimetallic nitride endohedral metallofullerenes can be vapor deposited, solution deposited and/or self-assembled

onto optical components. The third-order

limiter device has an optically transmissive

An exemplary optical

VO 2005/096726 A2 |||||||||||||

nonlinear properties of these films provide desired transmission characteristics.